These men are hard at work so that you will . . .

Fly to Paris in two hours

LANGLEY FIELD, VA.

JUST A FEW MONTHS AGO, air travelers entered the Jet Age. Since the first scheduled flight last fall of a transatlantic jet, regular flights have started between New York and the West Coast and between New York and Miami. Today sleek, 600-m.p.h. giants whisk you across the ocean in six hours, across the U.S. in four and a half.

New as they are, today's jets already are considered out-of-date at the wind tunnels and experimental laboratories of the National Aeronautics and Space Administration here, a few miles from Newport News. NASA scientists in a broad research program are mapping out the jet's successor: a 100-passenger liner that will fly three times the speed of sound and leap from New York to Paris in two hours and 15 minutes.

This supersonic speedster is not dream stuff, nor does it depend on possible future scientific breakthroughs. It could be powered by turbojet engines, using conventional fuels. The materials of which it would be built—titanium, high-strength steel—will be fabricated into strong, lightweight panels.

Better Engines, Better Planes

The Mach-3 transport, as engineers call it, would be based solidly on new research discoveries. Improvements in engine air intake and jet exit can make the same size jet engine twice as powerful. New aerodynamic findings indicate a shorter, lighter wing structure despite decreases in wing thickness.

Before you rip up your jetliner reservations, however, be warned: the supersonic transport is not just around the corner. Even if work began immediately, five years probably would pass before a supersonic jet could make regular flights. But most experts here agree the period will be much longer. They doubt that major airlines would consider changing to supersonic jets before the 1970s.

But when you finally fly by supersonic transport, you'll be in for a unique experience. As scientists here envision a New York-to-Paris hop (see chart), you'll take off from a conventional 8,000-foot runway. Minutes later, at 18,000 feet, the plane will burst through the sound barrier while climbing. After 19 minutes, your plane will reach cruising altitude of 63,000 feet —about twice that of present jets.

Then, at a speed faster than a rifle bullet, you'll cruise at gradually increasing altitude. It wouldn't be the most comfortable flight you'd ever had. Seats would be crowded as close together as on the densest of today's economy flights. Because of the plane's high external temperatures and the high internal pressures, there might be no windows. Even the pilot might rely on radar scopes, TV cameras and other instruments.

Engineers here think dense, closed-in conditions would be permissible because you'd be aloft such a short time. Probably, they say, you'd be entertained in flight by movies, possibly (by then) by world-wide TV. And, they point out, at 60,000 feet plus, you couldn't see much even if there were windows.

In the plane's cabin you'd sit in air-conditioned comfort. But the skin of the plane might reach temperatures of 500 to 600 degrees.

Your plane would cruise, at 2,000-m.p.h. speeds, for an hour and three-quarters. Then, 200 miles from Paris, it would begin its descent. Throttled down to minimum thrust, it would require 15 minutes to set the plane down in Paris.

Leaving New York for Paris at noon, you'd arrive —because of the five-hour time differential—at 7:15 p.m. But on your return flight, you would gain time. If you left at noon Paris time, you'd be in New York at 9:15 a.m.

On the ground, your plane would appear as a slender monster. Four-engined, it might have swept-back wings and no tail; or it might be a canard type, as in the photo at upper left, with tail and wings seemingly reversed. It will require a crew of six.

About 200 feet long, it would have a surface area of one-third of an acre. All its skin would be highly polished and smooth, without cracks, exposed joints or offsets.

How much would such a high-speed flight cost the traveler in a hurry? Operated over a 3,600-mile range with all seats, the fuel cost per passenger would be no more than in today's jets. And, on an eight-hour schedule, such a plane could make three transocean hops a day. In a week, it could shuttle 2,100 travelers to Europe, rivaling the *Queen Mary*.

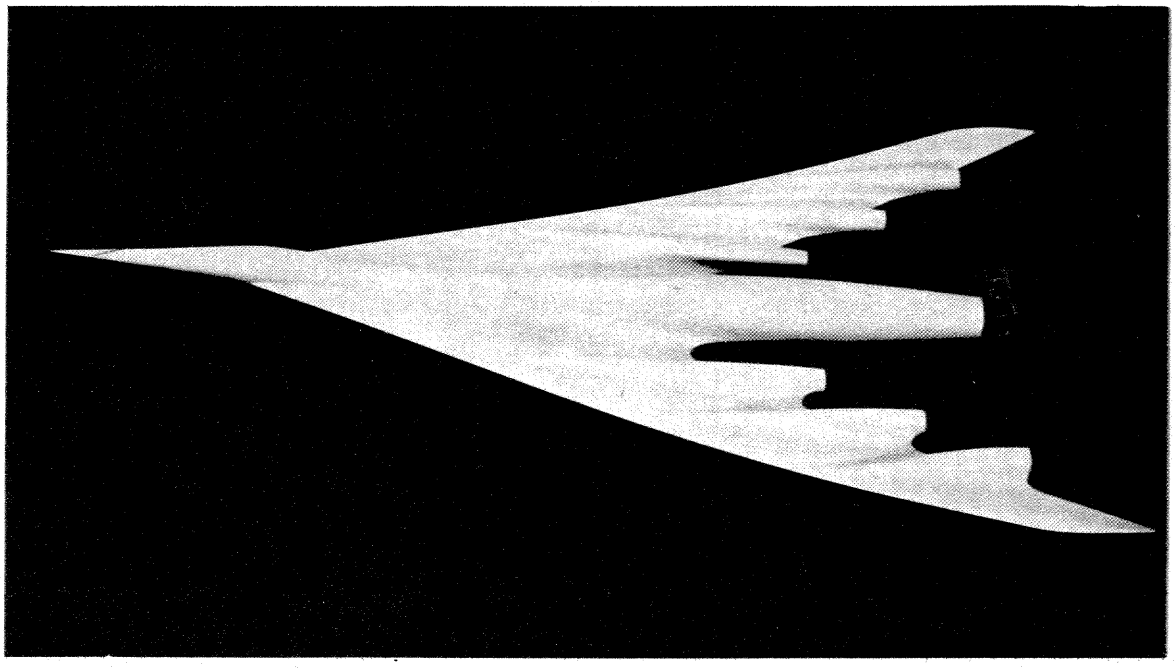
The Sonic Boom

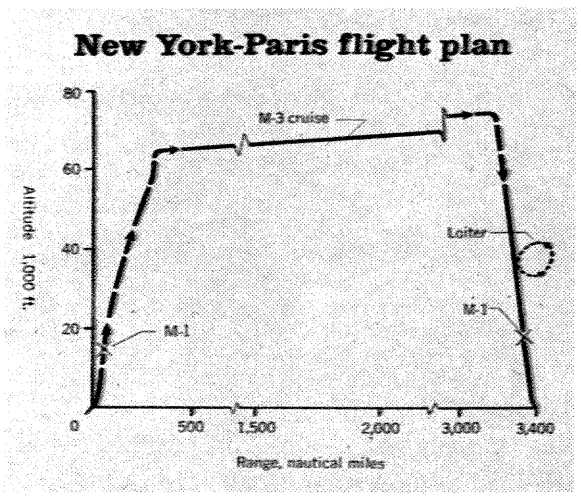
But a few problems must be solved first. There's the question of sonic boom: a plane cracking the sound barrier at 18,000 feet would produce an explosion that would shake buildings for miles around. Except in take-offs over water, the plane might have to climb more slowly, adding 10 minutes to its flight.

Even more of a problem would be the question of immediate landing and take-off. If the fuel-thirsty supersonic jet were required to circle half an hour awaiting landing clearance, it would eat up five and a half tons of fuel—and most of the profits.

Engineers here dream about a precise plan of flight controls and communications. The supersonic flight would be timed to the minute, with all air space and landing pattern space reserved in advance. But this, they admit, is futuristic and possibly outside their province.

A few lesser details remain to be ironed out before supersonic flight is practical. It won't be tomorrow, and it won't affect your short domestic hops to visit relatives. But Langley's men who look ahead have no doubt that two-hour hops to Paris are coming. And at Langley, the 1970s already are here. ■





Arrowhead model (l.), being wind-tunnel-tested at Langley Field, Va., may someday make supersonic flight in chart above. Changes in speed would be made during rapid ascent and descent. "M-1" marks spot sound barrier would be broken. "Loiter" is landing delay engineers want to avoid.